

NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

FORAGE HARVEST MANAGEMENT

(Ac.)

CODE 511

DEFINITION

The timely cutting and removal of forages from the field as hay, green-chop or ensilage.

PURPOSE

- Optimize the economic yield of forage at the desired quality and quantity
- Promote vigorous plant re-growth
- Maintain stand life
- Manage for the desired species composition
- Use forage plant biomass as a soil nutrient uptake tool
- Control insects, diseases and weeds
- Maintain and/or improve wildlife habitat

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to all land uses where machine harvested forage crops are grown.

CRITERIA

General Criteria Applicable to All Purposes

Forage will be harvested at a frequency and height that will maintain a desired healthy forage stand or plant community for the intended use and/or planned design life.

State Cooperative Extension Service (CES) forage harvest recommendations based on stage of maturity, moisture content, length of cut, stubble height and harvest interval should be used to meet the following criteria:

Stage of Maturity. Harvest forage at the stage of maturity that provides the desired quality and quantity.

Delay harvest if prolonged or heavy precipitation is forecast that would seriously reduce cut forage quality.

Moisture Content. Harvest silage/haylage crops within the optimum moisture range for the type of storage structure(s) being utilized.

Virginia Cooperative Extension Service recommendations for optimum moisture content and levels as well as methods and techniques to monitor and/or determine moisture content and levels will be used.

Treat direct cut hay crop silage (moisture content > 70%) with chemical preservatives or add dry feed stuffs to avoid abnormal fermentation and seepage losses of digestible dry matter.

For optimal dry hay quality, rake, ted, or invert swaths, and bale when cut forage has sufficient moisture to prevent leaf loss.

Bale field cured hay at 15 to 20 percent moisture.

Bale forced air dried hay at 20 to 30 percent moisture.

Rake hay at 30 to 40 percent moisture.

Ted or invert swaths when moisture is above 40 percent.

Length of Cut. When harvested for ensilage forage, will be chopped to a size appropriate for type of storage structure (including high moisture wrapped or tubed bales) that allows adequate packing to produce the anaerobic conditions necessary to ensure the proper ensiling process.

Contaminants. Forage shall not contain contaminants at levels injurious to the animals being fed. Contaminants are any objectionable matter or toxin that can cause rejection of the offered forage, illness, or death.

Additional Criteria to Improve or Maintain Stand Life, Plant Vigor and Forage Species Mix

Stage of Maturity and Harvest Interval. Cut forage plants at a stage of maturity or harvest interval range that will provide adequate food reserves and/or basal or auxiliary tillers or buds for regrowth and/or reproduction to occur without loss of plant vigor.

Cut reseeding annuals at a stage of maturity and frequency that ensures the production of viable seed or ample carryover of hard seed to maintain desired stand density.

If plants show signs of short-term environmental stress, harvest will be adjusted in a manner that encourages the continued health and vigor of the stand.

Stubble Height. Cut forage plants at a height that will promote the vigor and health of the desired species. Cutting heights will provide adequate residual leaf area; adequate numbers of terminal, basal or auxiliary tillers or buds; insulation from extreme heat or cold; and/or unsevered stem bases that store food reserves needed for full, vigorous recovery.

Manipulate timing and cutting heights of harvest to ensure germination and establishment of reseeding or seeded annuals.

Additional Criteria for Use as a Nutrient Uptake Tool

Employ a harvest regime that utilizes the maximum amount of available or targeted nutrients.

Additional Criteria to Control Disease, Insect, Weed and Invasive Plant Infestations

Schedule harvest periods as needed to control disease, insect, and weed infestations that threaten stand survival or production objectives. When a pesticide is used to control disease, insects or weeds, adhere to the specified days to harvest period stated on the pesticide label.

Lessen incidence of disease, insect damage, and weed infestation by managing for desirable plant vigor.

Additional Criteria to Improve Wildlife Habitat Values

If client objectives include providing suitable habitat for desired wildlife specie(s), then appropriate harvest schedule(s), cover patterns, and plant height to provide suitable habitat for the desired specie(s) will be maintained.

CONSIDERATIONS

When pasture forage supply exceeds current animal demand, coordinate with Virginia NRCS Conservation Practice Standard 528 (*Prescribed Grazing*).

Coordinate forage harvest with nutrient and lime amendments with Virginia NRCS Conservation Practice Standards 590 (*Nutrient Management*) and/or 633 (*Waste Utilization*), as appropriate

Coordinate forage establishment with Virginia NRCS Conservation Practice Standard 512 (*Pasture and Hay Planting*).

To minimize forage plant diseases, insects, and weeds, clean harvesting equipment after harvest and before storing. Cut forages after dew, rain, or irrigation water on leaves has evaporated.

Produce, store, and label forages so quality can be properly matched to animal needs.

Collect, store, and dispose of silage leachate (seepage) according to NRCS Conservation Practice Standard 629 (*Waste Treatment System*).

Store and feed harvested forage in such a way as to minimize quality damage and digestible dry matter loss.

In VA when rainfall and/or humidity levels may result in unacceptable forage quality losses, consider green chopping or ensiling the forage to reduce or eliminate field drying time.

To reduce safety hazards, avoid operating harvesting and hauling equipment on field slopes over 25 percent, particularly on cross slope traffic patterns.

When wildlife enhancement is a concern, mowing and/or haying will be done outside of the nesting season. If any necessary control of invasive or undesirable species is needed during the nesting season, spot mowing and/or spot herbicide application will be used.

PLANS AND SPECIFICATIONS

The detailed specifications will be documented in a site-specific job or design sheet or in the conservation plan.

These plans and specifications shall be consistent with this standard and shall describe the requirement for applying the practice to achieve its intended purpose.

OPERATION AND MAINTENANCE

Before forage harvest, clear fields of debris that could damage machinery or if ingested by livestock, lead to sickness (for example, hardware disease) or death.

Operate all forage harvesting equipment at the optimum settings and speeds to minimize loss of leaves.

Set shear-plate on forage chopper to the proper theoretical cut for the crop being harvested. Keep knives well sharpened. Do not use re-cutters or screens unless forage moisture levels fall below recommended levels for optimum chopping action.

Regardless of silage/haylage storage method, ensure good compaction and an airtight seal to exclude oxygen and mold formation.

Dispose of the plastic wrap or bags used to store forage in an environmentally sound manner.

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